

t50\_pzfmisc1  
(TMQzDW3N6KVw3oDwa9TJaR58hyMN4i4xAZZ)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $r6\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pzfmisc1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_pboole : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge \\ (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 \\ X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow \\ ((r6\_pboole X0 (k3\_pboole X0 X1 X2) (k1\_pboole X0)) \Leftrightarrow (r6\_pboole \\ X0 (k4\_pboole X0 X1 X2) X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge \\ (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 \\ X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow \\ (\neg(\neg v1\_xboole\_0 X0) \wedge ((r6\_pboole X0 (k3\_pboole X0 (k1\_pzfmisc1 \\ X0 X1) X2) (k1\_pboole X0)) \wedge (r1\_pboole X0 X1 X2)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge \\ (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow ((v1\_relat\_1 (k1\_pzfmisc1 \\ X0 X1)) \wedge ((v4\_relat\_1 (k1\_pzfmisc1 X0 X1) X0) \wedge ((v1\_funct\_1 (k1\_pzfmisc1 \\ X0 X1)) \wedge (v1\_partfun1 (k1\_pzfmisc1 X0 X1) X0)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\ X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))) \wedge ((v1\_relat\_1 \\ X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow \\ (k3\_pboole X0 X1 X2 = k3\_pboole X0 X2 X1) \end{aligned} \tag{4}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge \\ & (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. ((v1\_relat\_1 \\ & X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))) \Rightarrow \\ & (\neg(\neg v1\_xboole\_0 X0) \wedge ((r6\_pboole X0 (k4\_pboole X0 X1 (k1\_pzfmisc1 \\ & X0 X2)) X1) \wedge (r1\_pboole X0 X2 X1)))) \end{aligned}$$